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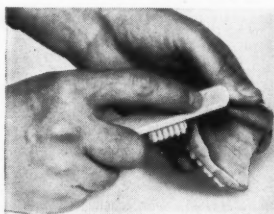
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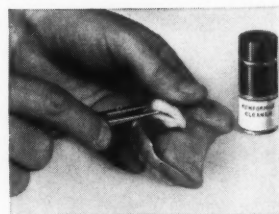
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About Our CONTRIBUTORS

WILLIAM E. POTTER (D.D.S., University of Buffalo, 1927) has a general practice in which he emphasizes oral surgery. Doctor Potter was formerly on the consulting and teaching staff at the University of Buffalo and assistant dental surgeon in 1936 at the Buffalo General Hospital; he was also assistant oral surgeon from 1930 to 1936 at the Edward J. Meyer Memorial Hospital. **CORRECTION OF ABNORMAL TOOTH ANATOMY: ITS EFFECT ON PATHOLOGIC CONDITIONS OF SOFT TISSUE** is Doctor Potter's first publication with us.

PHILIP S. HALEY (Ph. C., 1909; D.D.S., 1914, both from the College of Physicians and Surgeons, San Francisco) makes his third appearance in these pages. His first article on **ARTIFICIAL RESTORATION OF GINGIVAL TISSUES** was published in March, 1937. This was followed by **THE CONSTRUCTION OF TEMPORARY DENTURES** with the use of thermoplastic materials (September, 1938): Doctor Haley's present article adopts the new terminology: **THE CONSTRUCTION OF TRANSITIONAL DENTURES WITHOUT FLASK OR VULCANIZER**—"transitional" displaces "temporary."

RALPH W. EDWARDS (D.D.S., Kansas City-Western Dental College) is a professor of oral surgery at his alma mater. **THE VERTICALLY IMPACTED MANDIBULAR THIRD MOLAR** in this issue is another of several succinct and purposeful articles which Doctor Edwards writes from time to time expressly for **DIGEST** readers. The last was on **BROKEN INSTRUMENTS IN ROOT CANALS** in March, 1938.

WALTER WILLIAM DALITSCH (D.D.S., Northwestern University, 1919; M.D., Chicago College of Medicine, 1924) is particularly interested in the medical aspects of dental practice, working in consultation and collaboration with physicians. Doctor Dalitsch taught at Northwestern University for seven years; has taught in the medical department of the University of Illinois for fifteen years. He has been a prolific contributor to the literature but makes his initial appearance in our journal with his article on the **REMOVAL OF TEETH BY EXFOLIATION WITH ELASTIC LIGATURES**.

M. HILLEL FELDMAN (D.D.S., New York University, 1909) limits his practice to diagnosis, exodontia, and oral surgery. Doctor Feldman is chief of the dental department of the Lincoln Hospital which he founded in 1917. He was one of the "charter" contributors to the reorganized **DENTAL DIGEST** in 1932 and through the years has contributed regularly typical **DIGEST** "how-to-do-it" articles. With the present publication, he rounds the dozen in number of articles written for us. Because sulfanilamide is both a beneficent and dangerous drug, the timely **SULFANILAMIDE TREATMENT FOR OSTEO-MYELITIS: SEQUESTRATION WITHOUT EXFOLIATION** was written with the physician-collaborator in the case as co-author: **S. J. TUREL, M.D.**

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Correction of Abnormal Tooth Anatomy: Its Effect on Pathologic Conditions of the Soft Tissues

WILLIAM E. POTTER, D.D.S., Buffalo, New York

THE DESTRUCTIVE EFFECT of traumatic occlusion, open contacts, poorly-fitted crowns and bridges, calculus, and of the lack of mouth hygiene on the health of the soft tissues and bone surrounding the teeth is generally recognized by the dental profession. The influence that abnormal tooth anatomy has on the teeth and adjacent structures, however, has not been given enough attention.

Trauma produced by abnormally shaped and maloccluded teeth frequently will cause destruction of the neighboring tissues and sometimes will cause hypertrophy. This hypertrophied tissue sometimes seems to be produced by Nature in an attempt to protect the adjacent structures

from trauma; however, this is speculation.

Man's food is both animal and vegetable, and his teeth are so formed as to enable him readily to masticate either kind of food; therefore, his teeth differ from those of both the carnivorous and herbivorous animals, and form the type of tooth known as omnivora. Man's teeth are formed for cutting, tearing, and comminuting many kinds of food.

The teeth of different persons show considerable variety of form. Some have teeth with long crowns, broad in the mesio-distal direction at their occlusal surfaces and narrow at their necks. These present large interproximal spaces, and are known as

bell-crowned teeth. Others have teeth that, in their mesio-distal diameter, are almost as thick at their necks as at the occlusal surfaces, which makes their interproximal spaces narrow, and the teeth almost touch along the whole length of the crown. These are known as thick-necked teeth. The more common form is midway between these two extremes. The teeth of some persons and some families have long cusps; those of others are short. Some teeth are deeply marked by grooves and sulci; in other teeth, the grooves and sulci are shallow. Thus, there is considerable variety of contour without change of type.

For the purposes of this article.



Fig. 1—Schematic drawing of contact points in upper arch in which the occlusal surfaces have been ground down until the contact points are reached: (a) normal contact (self-cleansing); (b) broad, flat contact points; (c) after correction.

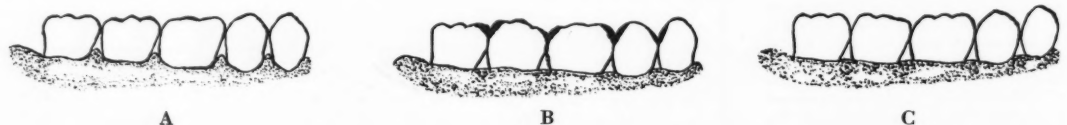


Fig. 2—Contact points of teeth viewed bucco-lingually; shaded portion indicates the part of the tooth removed to make contact points self-cleansing: (a) normal; (b) broad, flat contacts; (c) after correction.

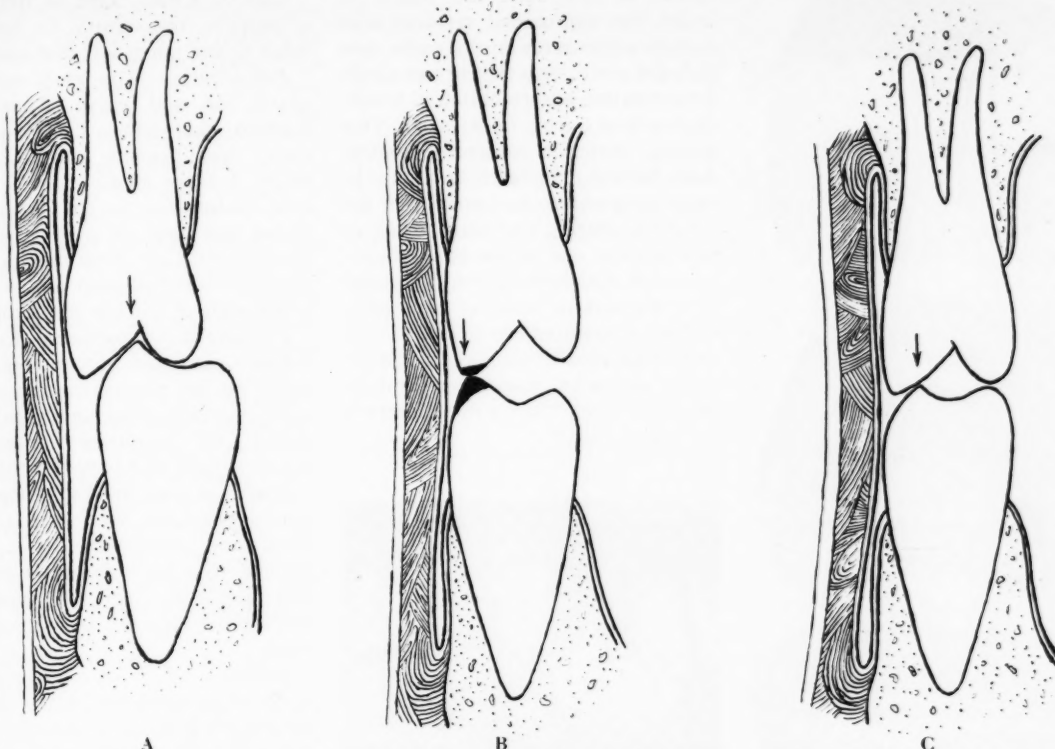


Fig. 3—Elimination of cheek-biting; arrow points to cutting edge: A, Normal cusp relationship. B, Shaded area shows where tooth was ground. Too many teeth should not be ground on the lower buccal marginal ridges as this may cause excessive closing of the bite. C, Teeth move into contact in about a week.

only those anatomic characteristics of the teeth affecting the health of the adjacent structures, namely, the soft tissue and bone, will be considered.

In the mesio-distal direction all teeth are a little broader at or near their occlusal surfaces than at their necks; therefore, as they stand in the well-formed arch, their proximate surfaces touch only at or near the occlusal margins of their proximate surfaces, leaving V-shaped interproximal spaces. Normally these interproximal spaces are filled with gum tissue.

In the bucco-lingual direction the proximate surfaces are more or less rounded, so that the proximate contact is narrowed to a point, leaving a space widening toward the buccal and the lingual. This represents the ball-bearing type of contact and is the ideal type which dentists strive for in order to get a self-cleansing type of contact between the teeth.

Many do not have this normal contact. Their approximating surfaces are broad and flat and there is contact almost the entire height of the approximating surfaces. Tough, fibrous, stringy food has a tendency to jam down in between these surfaces, and the patient finds it difficult to remove debris. This condition can be easily corrected by reducing and giving a greater curve to the point angles, thus effecting a narrower proximate contact. Other teeth may have a lack of contact between them and will require an inlay or a similar restoration to close the space and prevent the impaction of food in these spaces.

The buccal, labial, and lingual surfaces of teeth are slightly convex in shape. This convexity helps to protect the gingival line from direct force of food that is pushed toward it in the act of mastication. Although most of the lingual surfaces of anterior teeth are concave, the linguo-

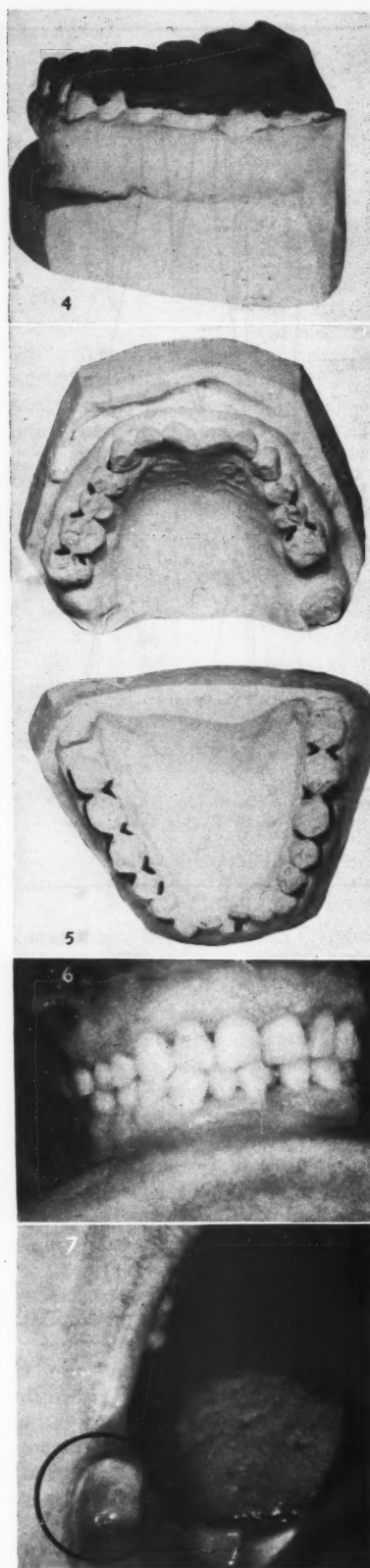
gingival ridge is convex and it is this ridge that protects the gingival line at this point.

If the buccal or labial surfaces form a straight line and are not convex the gingival line is going to recede and the soft tissue will probably become diseased. This condition can often be arrested by a slight amount of grinding on the marginal ridges.

Excessively high cusps on the bicuspids and molars often cause destruction of bone in the alveoli of the teeth. Reduction in height of these cusps will relieve excessive stress placed upon these teeth in lateral excursions of the jaws.

Edge-to-edge relations of cusps of posterior teeth, either in natural or artificial teeth, causing cheek-biting will often produce benign, hypertrophic growths that may become malignant unless the condition is corrected.

Anatomic defects that help to bring about so much destruction of the



gingival tissue which may later spread to the bone are found in broad, flat approximal surfaces with narrow embrasures on the molar and bicuspid teeth. This type brings about accumulation and retention of tough, fibrous food during mastication. This fibrous material gradually wedges down between the teeth and helps to cause deep approximal pockets in the gingivae. During the early stage of this process, one of the approximating teeth may develop the symptoms of a pulpitis or arterial hyperemia (extreme sensitiveness to hot or cold and tenderness to percussion). Traumatic occlusion may be present at the same time. The tooth is carrying too great a load.

Report of Cases

CASE 1—A man, aged 38, developed a pulpitis (sensitivity to hot and cold) in the upper left first molar.

Examination—The teeth were well cared for and clean. There was marked malocclusion; periodontoclasia was present in the second stage. A large mesio-occlusal amalgam restoration in the upper first molar had been present in the patient's mouth for about twenty years. Apparently it had been placed in the tooth without the use of a band.

Treatment—Treatment for the pulpitis consisted of reshaping and restoring the proper contour to the mesial surface of the amalgam restoration. All symptoms disappeared two days later and have not recurred.

CASE 2—A man, aged 45, whose general appearance was poor (debilitated and extremely thin), complained that he was losing weight, was unable to sleep well, and was lacking the strength to carry on his work.

History—The patient's mouth would often bleed for twenty-four or forty-eight hours at a time following a meal and it was almost impossible for him to brush his teeth because of excessive bleeding. He said that about a year before he had been taken to the hospital where it had required two days to stop a hemorrhage of the nose. The patient said that he was not able to drink milk because it made him sick.

Examination—The teeth were greatly abraded, and the cusps were worn down flat. There were no cavities or restorations present. Marginal ridges had a sharp, knife-like edge. The type of approximal contact was broad and flat. Anteriors were overlapping and crowded. Occlusion

Fig. 4 (Case 2)—Waxed area shows where teeth were ground.

Fig. 5 (Case 2)—Waxed areas of models show where teeth were ground. A small amount was removed from lower buccal marginal ridges so that bite would not be closed. Contacts made self-cleansing by grinding.

Fig. 6 (Case 2)—One and a half years after treatment. Slight recurrence of pocket on upper right lateral tooth. Remainder of mouth in excellent condition.

Fig. 7 (Case 4)—Fibro-papilloma of lip.

Fig. 8 (Case 4)—Fibro-papilloma. Edge-to-edge relationship of teeth. This caused biting of lower lip.

Fig. 9 (Case 4)—One year after removal of fibro-papilloma.

was well balanced during protrusive and lateral movements of the mandible. The gingiva had a pale pink color with loose hypertrophied flaps around the anterior teeth and deep pockets in the approximal surfaces of the posteriors. The slightest pressure upon the gingiva caused profuse hemorrhage. A moderate amount of calculus was present.

Examination of the Blood—The possibility of a blood dyscrasia was considered; therefore, a complete blood analysis was made which revealed the following: Coagulation time, 4 minutes; bleeding time, 7 minutes; red blood count, 4,500,000; white blood count, 7,500; hemoglobin, 85 per cent. The Wassermann reaction was negative. The bleeding time was a little slow but otherwise this examination revealed nothing significant.

Treatment—Treatment required about twenty visits, and consisted of the following:

1. Thorough scaling and polishing of the teeth.
2. Calcium lactate, 45 grains, and 5 drops of viosterol daily for three weeks.
3. The addition of soft-kurd milk to the patient's diet. (The patient was able to tolerate this type of milk well.)
4. An antiseptic, oxidizing mouth wash, used three times daily.
5. Surgical reduction of all pockets.
6. Correction of abnormal tooth anatomy by:
 - a) rounding off the sharp knife-like marginal ridges;
 - b) narrowing contact points;
 - c) making contact points on crowded anteriors narrower and increasing the curvature of the embrasures; (No cutting was done other than at the point angles of the posterior teeth.)
 - d) extraction of one third molar, because the pockets were too deep to correct surgically.

Results—All hemorrhage ceased. The patient gained 15 pounds in about four weeks, and regained strength and energy to carry on his daily tasks. He was no longer troubled by fibrous food packing in between his teeth.

CASE 3—A boy, aged 12 years, was

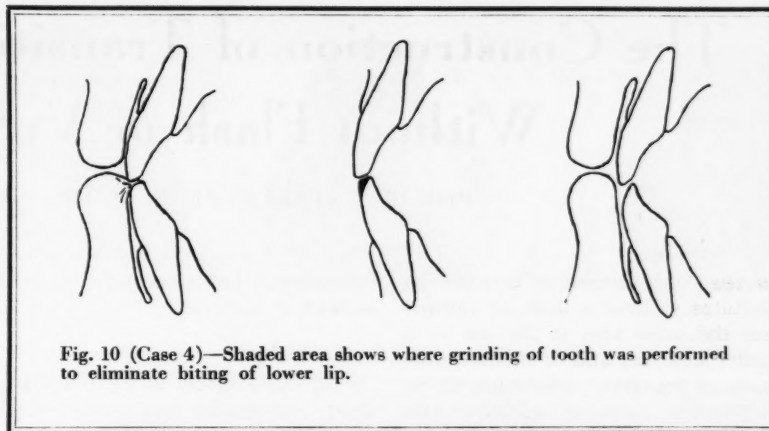


Fig. 10 (Case 4)—Shaded area shows where grinding of tooth was performed to eliminate biting of lower lip.

brought into the office by his mother who said that the small swelling which was present on the patient's lip had been removed surgically and cauterized after removal on three occasions. Each time after removal, the swelling recurred.

Examination—A small, rounded, thin-walled swelling was present on the inner border of the lip opposite the lower left central and lateral teeth. The lesion was about 4 mm. in diameter. No pain or discomfort was felt by the patient. The approximal sides of the central and lateral teeth diverged away from each other and formed a V-shaped groove with sharp corners at the incisal edge.

Diagnosis—A diagnosis was made of a mucous cyst.

Treatment—The disto-incisal angle of the central and the mesio-incisal angle of the lateral were rounded off with stones and polished. The lesion was cauterized with a drop of 50 per cent phenol and disappeared in three days.

CASE 4—A woman, aged 52, had had a fibro-papilloma of the lip removed surgically and cauterized under local anesthesia. Edge-to-edge cusp relations in the region of the upper and lower right cuspid and bicuspid were corrected by grinding. There was no recurrence.

Comments

I am not advocating the correction of tooth anatomy as a cure-all, but certainly its importance must be considered in the treatment of pathologic conditions of the soft tissues.

Moreover, I am not suggesting orthodontic treatment by means of carbundum stones; however, a small reduction in tooth surface will often change the act of mastication from a disease-producing process to a normal physiologic function.

Many cases of marginal and deep-seated gingivitis will respond better if correction of tooth anatomy is added to other methods of treatment. The beneficial effect of scaling and polishing the teeth, together with the use of various antiseptics, detergents, caustics, or oxidizers usually has a transitory effect. If abnormal tooth anatomy is the main cause of the symptoms, its correction will permanently relieve the condition. If, however, the symptoms are caused by calculus (the symptoms will recur as fast as the calculus is accumulated on the teeth); or, if a diet deficiency is the underlying cause, then that must be corrected; likewise, faulty occlusion must be corrected. In other words, the results of treatment depend on an accurate diagnosis and correction of those conditions that are causing the disturbance to the tissues.

Whether pockets of periodontoclasia are removed by means of surgery or by conservative methods both the patient and the dentist will be better satisfied with the results if any abnormal tooth anatomy in the mouth is carefully corrected. There will be fewer recurrences of hypertrophic growths if the irritation of abnormal tooth anatomy is removed.

9 East Ferry Street.

The Construction of Transitional Dentures Without Flask or Vulcanizer

PHILIP S. HALEY, Ph.C., D.D.S., San Francisco

IN THE CONSTRUCTION of transitional dentures without a flask or vulcanizer the basic idea is the use of a model as a die, and of a counterdie made of modeling compound. Thermoplastics (acetone soluble) and acrylic acid resins (chloroform soluble) are the materials recommended in the technique to be outlined here.

Advantages

1. No flasking, waxing (where baseplate alone is wanted, as in orthodontia) or heating are necessary.
2. Tedious labor is saved when the laboratory procedures are done in a small office.
3. Office space is conserved.
4. The likelihood of displacement of clasps or bars in pressing is eliminated.
5. A two-tone effect may be secured.
6. Postdamming is easily secured by simply painting solution 1 (Fig. 1) over the posterior border, and may be repeated if required.

Equipment

The important articles of equipment are: two solutions (Fig. 1), designated as solution 1 and solution 2; two-plate glass slabs, 3 inches by 4 inches; modeling compound for counterdie (Figs. 2, 3, 4, and 5); a sufficiency of either thermoplastic or acrylic acid base-plate material, and cellophane.

Solution 1 is made by dissolving any thermoplastic base-plate material in acetone until a solution of the consistency of heavy molasses is obtained. This is used for postdamming or coating clasps or bars before placing on the model, preparatory to attaching them to base-plate material. Solution 2 is made by the same method, but is slightly thinner in consistency, and is colored more deeply by the addition of from two drops to five drops of carbolfuchsin. When the acrylic resins are to be used, the solutions should be similar in

consistency, but chloroform is used instead of acetone.

Technique

1. A stone model is made from a good impression, and coated with soap suds, a quantity of which is kept handy, together with water for wetting the model (Figs. 6 and 7).
2. Base-plate material, softened in a jar to the consistency of firm, soft rubber, is squeezed between the glass slabs to the thickness of approximately 6 mm. The slabs must be wetted before pressing. Two rubber bands (Fig. 8) of suitable tensile strength are used to hold the material at the correct thickness until its adaptation to the model.
3. A plate-strengthener is now adapted to the model (Fig. 7, dotted line). If clasps are to be used, they are now fitted, and the retention lugs are coated with solution 1.
4. All metal parts are removed, and the base-plate material is taken between the wet fingers and trimmed to approximately the outline of the model parts to be covered. The base-plate material is pressed with the fingers to the model, held for twenty seconds and laid aside upon a wet glass slab.
5. The model is covered with two thicknesses of blotting paper, softened in water, and adapted to the model.
6. Wet cellophane is then applied, and a counterdie made by adapting modeling compound in a soft state, with the fingers, in such a way as to cover the cellophane (Figs. 4 and 5). Remove the blotting paper and discard it. If the cellophane is not adherent to the counterdie, it may be easily adapted to its inner surface.
7. At the right side of the model (Fig. 5), a portion of the compound is cut away after chilling with cold water, and a lock is cut. More compound is now used to complete the counterdie; this is fitted into the lock.

8. Remove the compound and replace the baseplate on the model, after again wetting the model with soap-suds.

9. With a pen-knife, cut slits in the material to allow for insertion of clasp-lugs and plate-strengthener.

10. Fill slits with solution 1.

11. Wet the cellophane inner surface of the counterdie and press firmly with the counterdie over the baseplate on the model until apposition takes place.

12. Place a weight of two pounds upon the counterdie and allow to stand for fifteen minutes.

13. Remove counterdie-lock at the right side, and gently raise the baseplate from the model to see that it is not adherent to the model; then replace both. If adhesion has taken place, wet the model again. In about one hour the material will no longer adhere to the model. The case may be glanced at occasionally during the office-day to see that clasps and baseplates are in place.

The procedure described, up to this point, requires only a few minutes after experience has been gained. In three days a hard baseplate will be secured (Figs. 9, 10, and 11).

14. *Finishing*—Remove the case from the model and finish roughly, with files, sandpaper discs, and scissors. If the baseplate is seen to have drawn away from the model slightly, wet the model at the posterior edge; paint solution 1 thickly over the posterior border of the baseplate, and after a waiting period of twenty seconds, readapt the case to the model. There will be a slight unavoidable warpage, but this may be easily overcome by warming the plate in hot water for a few seconds, and readapting to the model. Two-plate strengtheners may be used if desired, the second farther toward the anterior than the first.

15. Polishing is now done with pumice and water, or powdered silica

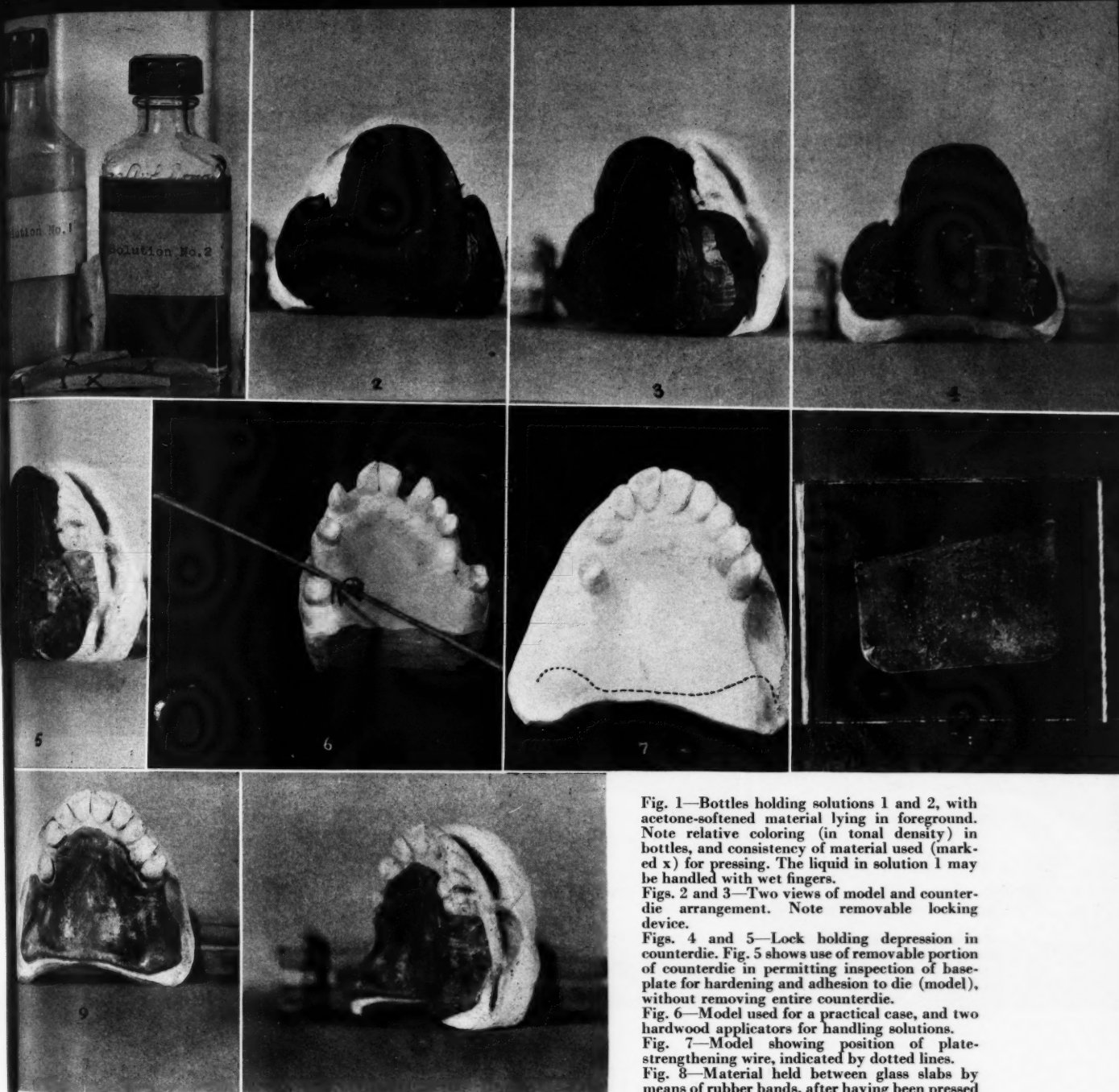


Fig. 1—Bottles holding solutions 1 and 2, with acetone-softened material lying in foreground. Note relative coloring (in tonal density) in bottles, and consistency of material used (marked x) for pressing. The liquid in solution 1 may be handled with wet fingers.

Figs. 2 and 3—Two views of model and counterdie arrangement. Note removable locking device.

Figs. 4 and 5—Lock holding depression in counterdie. Fig. 5 shows use of removable portion of counterdie in permitting inspection of baseplate for hardening and adhesion to die (model), without removing entire counterdie.

Fig. 6—Model used for a practical case, and two hardwood applicators for handling solutions.

Fig. 7—Model showing position of plate-strengthening wire, indicated by dotted lines.

Fig. 8—Material held between glass slabs by means of rubber bands, after having been pressed to desired thickness with hand pressure.

Figs. 9 and 10—Two views of baseplate after drying and pressing have been completed. Polishing is now done either with pumice and water or simply by rubbing to a glaze with acetone.

and water. Recently, I have used vaseline instead of water, rotating the brush at about 2000 revolutions a minute on the lathe. The method eliminates the possibility of flying pumice and calls for less space, inasmuch as a small quantity of this mixture will replace a large amount of pumice and water.

Two-Tone Effect

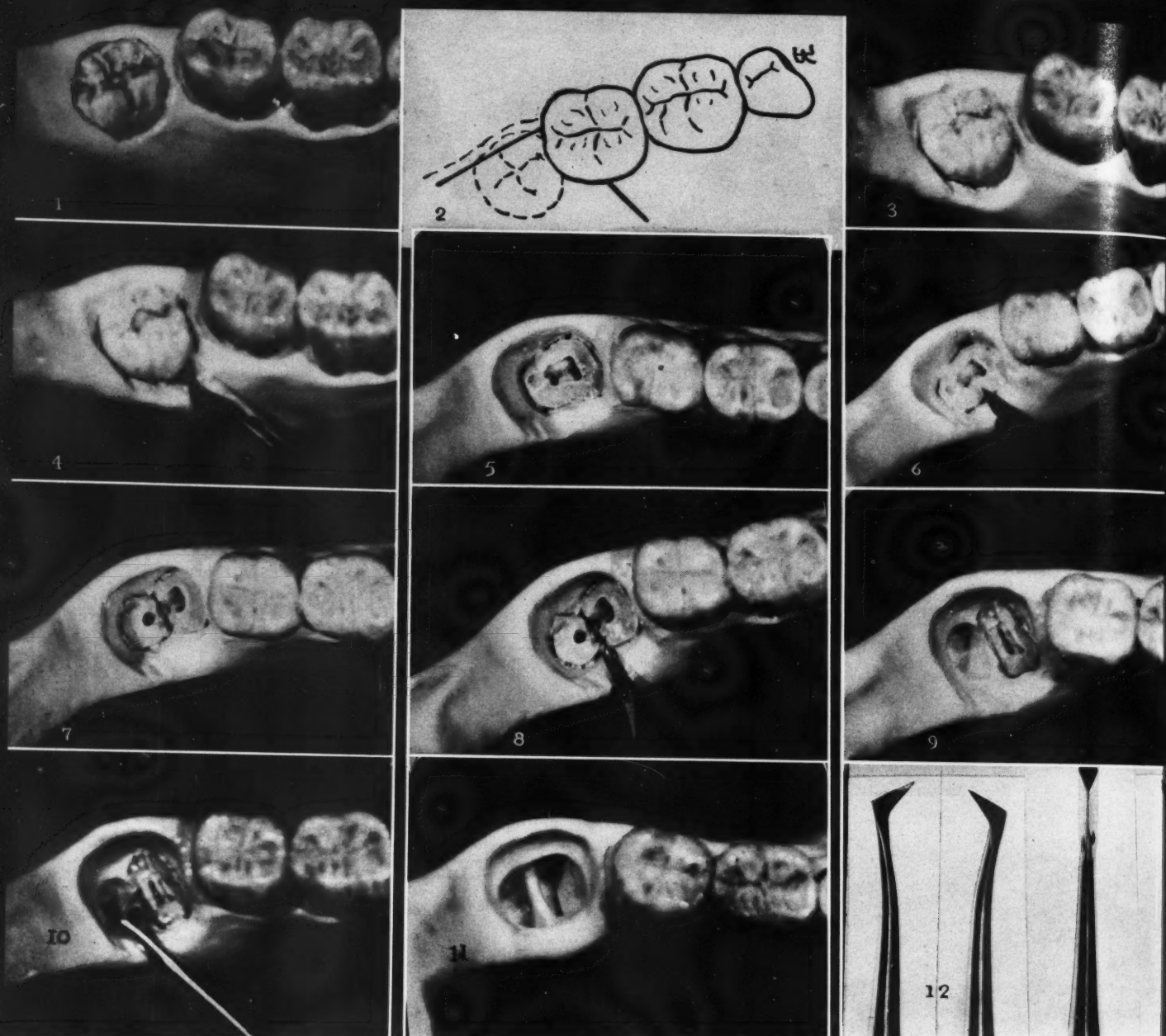
A two-tone effect is secured, when

an artistic coloring is desired, by using solution 2. This solution, and also solution 1, may be handled well with hardwood applicators, one or two as required. If the anterior portion of the gums is to be reproduced, the somewhat darker coloring of the inter-root spaces, as shown by the overlying gums, may be nicely imitated. Palatal rugae may also be reproduced as well as the appearance of inflamed areas should this be advisable.

Postdamming in the Mouth

Postdamming in the mouth may be done by using solution 1 as described, but a word of caution here: The case is adapted to the palate after painting the posterior border, held in the air for twenty seconds, and placed in the mouth. Slight finger-pressure is

(Continued on page 309)



The Vertically Impacted Mandibular Third Molar

RALPH W. EDWARDS, B.S., D.D.S., Kansas City, Missouri

POSITIONAL VARIATIONS from normal occur most frequently in the mandibular third molar. When malaligned in its relationship to the second molar, this tooth assumes a position that is horizontal, oblique, or vertical. Be-

cause of this deviation from normal alignment, forceps application for tooth removal is virtually impossible, and other means must be devised to deliver the tooth from its socket.

The vertically impacted molar may

be erupted or submerged, partly or completely covered with bone. The roots may be bifurcated or fused. A type that commonly occurs is that with bifurcated roots, the crown partly covered with bone, and com-

Fig. 1—Position of tooth in jaw, partly covered with bone.

Fig. 2—Incision preparatory to retraction of tissue.

Fig. 3—Bone overlying distal marginal ridge and disto-lingual cusp has been removed. Bone covering cervical portion of buccal surface is cut away, giving access to cemento-enamel junction of tooth.

Fig. 4—Chisel in position with cutting edge at cemento-enamel junction of tooth. Long axis of instrument is directed toward disto-lingual angle of tooth.

Fig. 5—Coronal part of tooth removed, showing open pulp chamber.

Fig. 6—Position of chisel directed downward over bifurcation of roots. A sharp blow from mallet will sever roots.

Fig. 7—Roots separated.

Fig. 8—Bifurcation elevator is placed between roots. External oblique ridge utilized as a fulcrum in displacing distal root from its alveolus.

Fig. 9—Distal root removed.

Fig. 10—Triangular-shaped elevator used to remove mesial root.

Fig. 11—Socket after removal of roots. Roughened bone edges are smoothed before replacing tissues.

Fig. 12—Instruments used in sectioning and removing tooth.

pletely submerged under the tissues (Fig. 1).

Technique

The incision for the retraction of tissue in this area should be so designed that accessibility to the area is sufficient for instrumentation, and the tissue, when replaced, will be resting upon a substantial bone foundation. The incision illustrated in Fig. 2 fulfills these requirements.

1. The bone covering the distal marginal ridge of the tooth is removed, and the bone covering the cervical portion of the buccal surface is cut away, exposing the cemento-enamel junction of the tooth (Fig. 3).

2. A chisel is placed at this junction near the mesio-buccal angle of the tooth, with the long axis of the instrument directed toward the disto-lingual angle (Fig. 4).

3. A sharp blow from the mallet is sufficient to sever the coronal part of the tooth.

4. After the crown has been re-

moved the chisel is placed over the bifurcation (Fig. 6) to split the roots (Fig. 7).

5. A bifurcation elevator is applied between the roots (Fig. 8), removing the distal root (Fig. 9).

6. The mesial root is dislodged by the application of a triangular point elevator (Fig. 10).

7. The socket is freed of bone spicules; the roughened edges are smoothed (Fig. 11).

8. Tissues are replaced and sutured.

Comments

Impacted teeth can be removed more readily by sectioning, with less trauma to the osseous structures.

In splitting teeth in the mandibular third molar area, unusual caution must be observed not to direct the chisel at right angles to the lingual plate of bone. The lingual plate in this region is usually much thinner than elsewhere, and susceptible of fracture.

1108 East Tenth Street.

THE CONSTRUCTION OF TRANSITIONAL DENTURES WITHOUT FLASK OR VULCANIZER

(Continued from page 307)

applied over the posterior area. Within a few seconds the pressure is withdrawn. The process may be repeated until a satisfactory condition prevails. But before the first insertion the patient must be told to breathe in through the nostrils and out through the mouth. This prevents an occasional slight dizziness from acetone absorption which might be otherwise experienced. If the chloroform solution is to be used, it is best to carry out the procedure on the model; however, the acetone solution unites well with the acrylic acid material, and may be used instead.

Setting-Up Teeth

The purpose of this article is mainly

to show the construction of the base-plate. If teeth are to be set on the model, they may be set in the edentulous spaces as described in a previous article.¹ In this case the counterdie must be trimmed to allow room for the teeth. These are set on the ridges, using the softened base-plate material of the rubber-like consistency. This is coated with solution 1 and pressed with finger pressure to the model and base-plate edges. The teeth are next set into it. They must be watched, by an occasional examination, and if found drifting out of occlusion, are pressed back into posi-

tion. In about two hours they will be found to be well fixed if the articulated case is kept closed.

This manner of affixing the teeth sounds more difficult than it really is. It must be practiced a little before proficiency is acquired.

If desired, the teeth may be waxed to the baseplate and the case flaked and pressed, with the rubber-like material described. This requires another thirty-six hours for drying, however, but has merit if the operator has time to wait before finishing the case. The material flows easily, and the flask may be simply pressed together without heat or placing in the vulcanizer.

521 Shreve Building.

¹Haley, P.S.: The Construction of Temporary Dentures. DENTAL DIGEST, 44:370 (September) 1938.

Removal of Teeth by Exfoliation with Elastic Ligatures*

WALTER WILLIAM DALITSCH, M.D., D.D.S., Chicago

CASES OF EXCESSIVE bleeding following dental extraction occur frequently enough to warrant serious consideration. Usually such bleeding causes anxiety to both dentist and patient unless readily controlled. Although fatal outcome is not usual, it may occur. Reports in the dental literature of excessive hemorrhage are frequent. Many of these instances of excessive bleeding may happen to patients with blood disturbances. The most dreaded and most serious episodes happen to the true "bleeders" or hemophilic persons in whom the possibility of serious and occasionally fatal hemorrhage following dental operations, especially tooth extraction, is not rare.

In a consideration of the various procedures used to control bleeding from dental extraction in patients with hemophilia, it was noted¹ that one of the patients observed had several teeth removed by the use of elastic bands applied to the neck of the tooth. This constriction caused a slow separation of the periodontal membrane and the tooth eventually loosened and fell out. This method seemed to have certain advantages and seemed to deserve further investigation.

An early reference to use of this method is mentioned by Housden² who stated that "several roots had been successfully got rid of by this method." In the same report Ash described a case that he had seen nine years previously in which a patient, aged 12 years, had loosening of his two central incisors resulting from the inadvertent prolonged application of a rubber band. Also in this report, a Mr. Sawday described a case in which a tooth was lost as a result of the retention of a ring of rubber



Fig. 1—Photograph of teeth of hemophilic patient showing rubber band elastic ligatures applied to upper right lateral incisor. The first band is carried to the gingival margins and subsequent bands are placed above it. The adjacent upper right central incisor has recently been removed by the same process without bleeding. Note the good condition of residual ridge.



Fig. 2—Rubber bands that have been in position for some time have become bleached and are white. Most recently applied band toward crown still retains dark pigment.

*From the Department of Medicine, College of Medicine, University of Illinois.

¹Dalitsch, W. W.: Dental Extraction in Hemophilia, J. A. D. A. 21:1804 (October) 1934.

²Branch and Section Reports, British D. J. 44:1136, 1933.

dam around the root. He expressed the opinion that a great deal of pain was caused by using the rubber rings. Further mention of this method of removing teeth is made by Cambrook.³ He cites a case in which several teeth had been removed by the use of rubber bands. His remark is: "This set up periodontal trouble and in the course of time the teeth had fallen out." He concludes that this method is "painful but effective."

Report of Case

In our own experience seven teeth were removed by rubber band ligatures in a patient with a high-grade hemophilia whose clotting time was always extremely high, often varying from 18 to 48 hours.

History—This patient (from the service of Doctor Carroll L. Birch) has had numerous episodes of excessive bleeding since birth. He was crippled in both knees and arms as a result of hemorrhages into the joints. He has had numerous hemorrhages into the subcutaneous tissues and from the genito-urinary and gastrointestinal tracts. He had on several occasions severe hemorrhages into the oral tissues which spread through the floor of the mouth and into the neck. One such hemorrhage infiltrated virtually one whole side of his face, neck, and trunk before it was controlled. Several severe hemorrhages occurred from the gums about the necks of the teeth. This patient had numerous badly decayed teeth with considerable gingivitis and it was thought advisable to attempt removal of the worse root fragments and teeth that appeared infected on roentgenographic examination. Because the coagulation time could not be decreased by the usual methods, extraction of teeth by forceps was out of the question; therefore, it was decided to attempt removal by the use of rubber bands.

Procedure—1. A small size of rubber band orthodontia intermaxillary elastic ligature was used. This was slipped over the crown of the tooth and placed into position around the neck of the tooth (Fig. 1).

2. After a few days the rubber band slipped under the free gingivae and



Fig. 3—Roentgenogram of lower right molar of hemophiliac patient showing progressive atrophy and absorption of alveolar crest resulting from action of the rubber band ligature.

was lost to view.

3. A second similar elastic ligature was placed over the first one.

Postoperative Course and Results—
1. Owing to the tapering of the root

the elastic band tended to slip toward the apex. The gradual pressure upon the soft tissues from the presence of this constricting force evidently produced a pressure atrophy



Fig. 4—Roentgenogram of lower right first molar of hemophiliac patient showing advanced absorption of alveolar process extending toward and around the apices of both roots. This was taken just before the tooth exfoliated.

³Cambrook, J. D.: Some Observations on the Extraction of Teeth in Cases of Hemophilia. *Odontology Section, Royal Soc. Med.* 26:962. 1933.

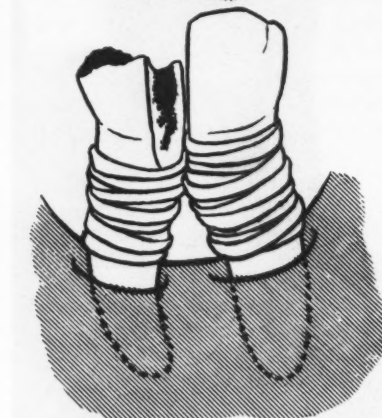
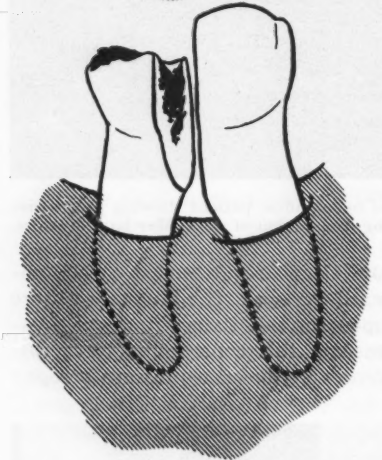
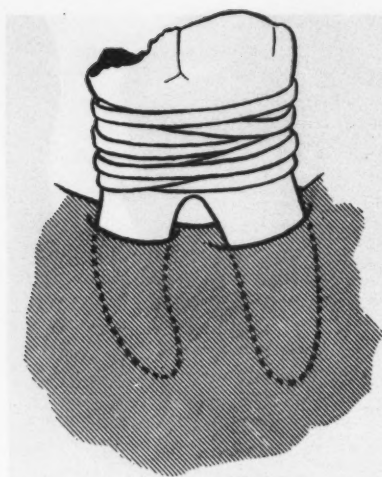


Fig. 5 (top)—Lower molar with divergent roots. Ligatures produce absorption below point of bifurcation.

Fig. 6 (center)—Elastic bands around tooth have been removed. Crown portion is cut through with a bur and the roots are separated.

Fig. 7 (bottom)—Rubber band ligatures have been applied again to each root individually. Now the rubber bands can progress rapidly toward the apex without encountering the obstruction that the divergence of the roots presented.

of the tissues against which it came in contact, resulting in destruction of the periodontal fibers and anemic atrophy of the blood vessels.

2. Application of additional rubber bands increased the tendency of the first one to progress toward the apex.

3. The tooth gradually became looser and extruded somewhat from its socket, so that it had an elongated appearance. There was considerable soreness when direct pressure was applied, but otherwise no disagreeable pain.

4. After about four weeks' time the tooth came out with a slight amount of bleeding. The socket appeared to

be well covered with epithelialized gum tissue except at the point where the root apex had been attached. This area was covered with granulation tissue. At no point was there bare alveolar bone exposed. Evidently as the elastic ligature produced separation of the periodontal fibers and atrophy of the alveolar process, it also promoted a soft tissue reaction resulting in production of granulation tissue and, finally, healing.

Roentgenographic Observations—Progressive roentgenograms showed that there was a wide zone of bony resorption well in advance of the position occupied by the rubber liga-

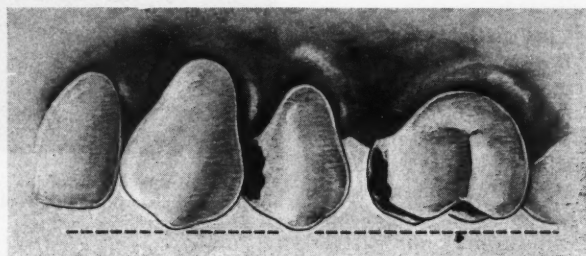


Fig. 8—Teeth to be removed by rubber band exfoliation procedure before trimming cusps. Note length of cusps in relation to dotted line.

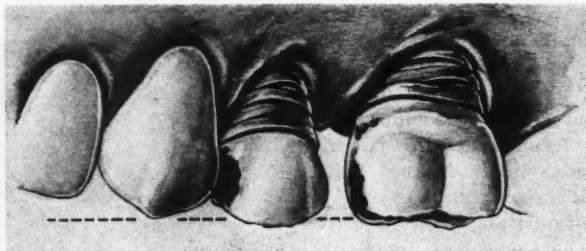


Fig. 9—Rubber band ligatures applied and teeth have become elongated and extruded from their sockets. The resulting traumatic occlusion produces pain and soreness.

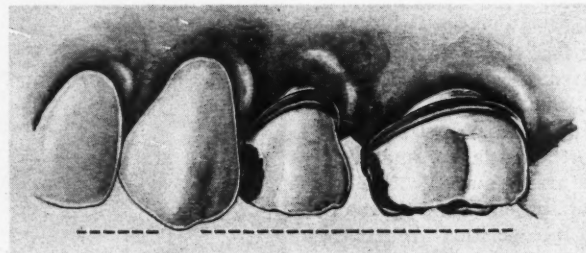


Fig. 10—Grinding off a portion of the incisal and occlusal surfaces permits the teeth to extrude from the socket without striking those of the opposing jaw and trauma is prevented. This should be done before the ligatures have been applied and before the teeth have become loose.



Fig. 11—Photograph of patient with toxic adenoma of the thyroid gland showing elastic ligatures applied to broken down and abscessed upper left first bicuspid. Enlargement of the thyroid gland, moist appearance of the skin and distended blood vessels are evident here.

tures (Fig. 3). First the walls of the alveoli underwent resorption and gradually this process extended toward and around the apex (Fig. 4).

Subsequent Removals—Six other teeth were removed in this same patient in a similar manner. These included a lateral incisor, two lower molars, and two upper bicuspids. The time required for removal of these teeth varied from three weeks to three months, depending on the cooperation of the patient and the size and type of tooth. In some instances the patient did not return at the appointed time and a week or two would elapse before a second ligature could be applied, and therefore,

little or no progress would be made.

Modified Procedure

It was found that teeth with divergent roots and teeth with multiple roots required a modification of the procedure. When the roots diverge as in a lower first molar (Fig. 5), the ligature would have difficulty slipping by the point of greatest divergence. In such a case it was found advisable, after absorption had occurred below the point of bifurcation, to separate the roots with a bur and apply a separate ligature to each root (Fig. 6). Thus the ligature then can work toward the apex of each root separately and not encounter the obstruction of

the wide divergence (Fig. 7). This procedure was also followed in removal of a two-rooted upper first bicuspid and in the three roots of an upper first molar.

Along with the action of separating the attachment of root to gum tissue and alveolar process, there is a decided extrusion of the root from the socket and pronounced elongation (Fig. 8). Thus the cusps of the affected tooth may be raised above the line of normal occlusion and occlude first on the opposing teeth of the opposite jaw (Fig. 9). This repeated trauma may add greatly to the pain and soreness; it may be prevented by grinding off the occlusal surface and cusps of the affected tooth prior to the application of the ligature. It will be necessary to remove at least 2 mm. or 3 mm. of the incisal or occlusal surfaces to prevent contact with the opposing teeth (Fig. 10). If this is not done before the application of these ligatures, the tooth becomes loose and tender, and grinding becomes a painful ordeal.

Criticism has been made by observers of this method of removing teeth that there may be so much alveolar process absorbed that the residual ridges may not be fit for the application of restorations. Although it is true that the success of the method is due to the atrophy of the alveolar process, nevertheless because of the tendency for the root to extrude from the socket, the alveolar process is not absorbed all the way to the apex region and the tooth is exfoliated while there is still considerable process remaining; therefore, the residual ridge is not much different from that which eventually remains after extraction by the usual methods.

Additional Indications for Use: Report of Case

There may be other situations in which the exfoliation of undesirable teeth by the rubber band method would be advisable other than cases in which excessive bleeding may occur. Cases of severe grades of thyrotoxicosis have been encountered in which it was considered necessary to remove infected or painful teeth and roots. The patients almost border on a state of hysteria and are extremely apprehensive of any surgical procedure, such as extraction. They re-

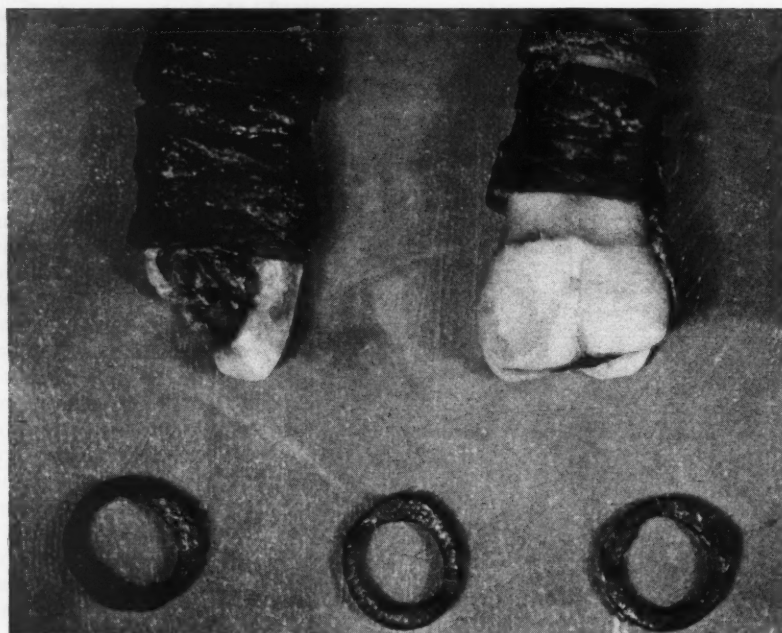


Fig. 12—Appearance of bicuspid and molar just after removal showing rubber band ligatures in place from crown to apex. The bands that were first applied at the beginning of treatment slipped over the apex and off the tooth.

act severely to the ordinary type of vasoconstrictor agents, such as epinephrine. I have seen a patient develop auricular fibrillation together with marked aggravation of all the thyrotoxic manifestations after an injection of procaine hydrochloride with epinephrine for the purpose of tooth extraction. In such cases exodontia by the usual methods is contra-indicated.

The first case of thyrotoxicosis in which the method was used was for a woman, aged 58, who had an adenomatous goiter which had become toxic in the last year. There was a constant state of restlessness, tremor, tachycardia, with a blood pressure of 160 systolic and 94 diastolic. The patient had lost 13 pounds in the last six months, although her appetite was excessive. She would not submit to a basal metabolism test and any suggestion for surgical treatment was immediately rejected inasmuch as she is a believer in Christian Science. Her skin was flushed and moist; there was a wide, staring appearance to the eyes, and the patient was extremely fearful of any dental instrumentation, although she had numerous badly decayed and abscessed teeth. Without telling her

the purpose of the procedure, the rubber band ligatures were applied over several teeth (upper left first bicuspid and first molar). The patient was merely told that the rubber bands were being used in treatment (Fig. 11). Within three weeks' time both of these teeth were exfoliated without any shock to the patient either physically or mentally. When the teeth fell out without bleeding, the patient was overwhelmed with joy and gratitude. A lower right second molar was removed in a similar manner and with similar results (Fig. 12). According to the patient's conception, this method of removing teeth was not a surgical procedure and therefore did not conflict with her beliefs in Christian Science.

Other situations in which the application of a constricting ligature may be a useful and desirable means of removing tissue are for pedunculated tumors and gangrenous extremities. The same principle is used in lobectomy.

Summary

A method of removal of teeth by the use of rubber band ligatures is described which may be termed non-surgical and bloodless extraction, or

better, exfoliation. This procedure has been used in several severe cases of hemophilia with successful removal of the teeth and little or no hemorrhage. It has been used in a case of thyrotoxicosis with prevention of hemorrhage, surgical shock, and mental trauma. It is a method that may have application in other fields for the removal of undesirable tissue.

Conclusions

1. Exfoliation of teeth and roots can be successfully accomplished in hemophiliac patients and in other poor-risk patients with the advantages of little bleeding, gradual exfoliation with little or no physical, surgical, or psychic shock.

2. The advantages of this plan are that it causes anemic atrophy and closure of the smaller blood vessels and gradual accomplishment of the desired purpose of exodontia.

3. The disadvantages are that the procedure prolongs the period of treatment over several weeks or months and causes some discomfort and soreness, which, however, can be considerably controlled.

30 North Michigan Avenue.

The Editor's Page

A RECENT JOINT discussion¹ among the members of the Sections of Laryngology and Odontology of the Royal Society of Medicine brought out many of the common problems with which laryngologists and dentists are confronted with respect to infections of the maxillary sinus. In this day when sinus infections affect so many people, it is rather strange that there should exist such diversity and disparity of opinion regarding the etiology and treatment of the condition. The discussers before this meeting indicate that authorities differ widely in their concepts of antral infection of dental origin. Some clinicians believe that less than 8 per cent of sinus infections are of dental origin whereas others believe that as many as 50 per cent originate in the mouth.

There are three distinct types of dental conditions that may produce sinus disease: First, there are the chronic dental infections at the root-ends of teeth and in the supporting tissues. Second, there are the acute types of dental infection usually associated with gangrene of the pulp. Third, there are those accidents incident to oral surgery that are causes of sinus disease, fractured roots driven into the sinus being chief among these accidents.

The discussers before the Royal Society of Medicine seem to agree that in the cases of maxillary sinus infection of chronic dental origin the disease is carried through the blood and lymph channels as an ascending alveolar osteitis and that the inflammatory process is largely confined to tissues of the floor of the sinus. In such a case an infection at the apex of the root or a pyorrhea pocket along the root extends through the drainage channels in bone to the tissues of the sinus. If this concept is true there may not be roentgenographic evidence of destruction of bone but there may nevertheless be present an extension of infection through bone.

The discussers felt that the acute dental infections cannot be regarded as common sources of antral disease. They seem to feel that the escape of pus in these cases is much easier through other channels than through the floor of the sinus. The very nature of an acute

alveolar abscess usually tends to make it point externally in the soft tissue rather than internally in bone. The most common way in which the sinus becomes diseased from dental origins is during extraction or when a tooth or root is forced into the antrum, according to these authorities.

In those cases in which the sinus is accidentally opened, conservative treatment was recommended. There was complete agreement in this discussion that the less manipulation of the sinus through dental openings, the better. The practice of enlarging the alveolus to remove a root fragment forced into the sinus was opposed. The use of suction tips to remove tooth fragments was generally approved. The practice of vigorous syringing and manipulating through the tooth socket was strongly discouraged. In those cases of accident during tooth removal in which a root tip is forced into the sinus there was some disagreement as to whether the case should be treated as an emergency with immediate operation to remove the fragment or whether the patient should be allowed to return at a subsequent date for an opening through the canine fossa in order to remove the foreign body.

One of the discussers pointed out that a terrific edema of the mucous membrane of the sinus occurs immediately after injury and that one should therefore wait until the edema has subsided before making an exploratory operation for removal of the foreign body. This discussor likewise made the interesting observation that frequently by such a delayed treatment the root fragment was actually carried from the sinus floor to the middle meatus of the nose where the recovery could be made by intra-nasal surgery.

In summing up the whole problem, A. J. Wright stated the case thus:

(1) Prevention. Is it wise to adopt a conservative line of treatment in cases of infection, in or around, the upper premolars and molars?

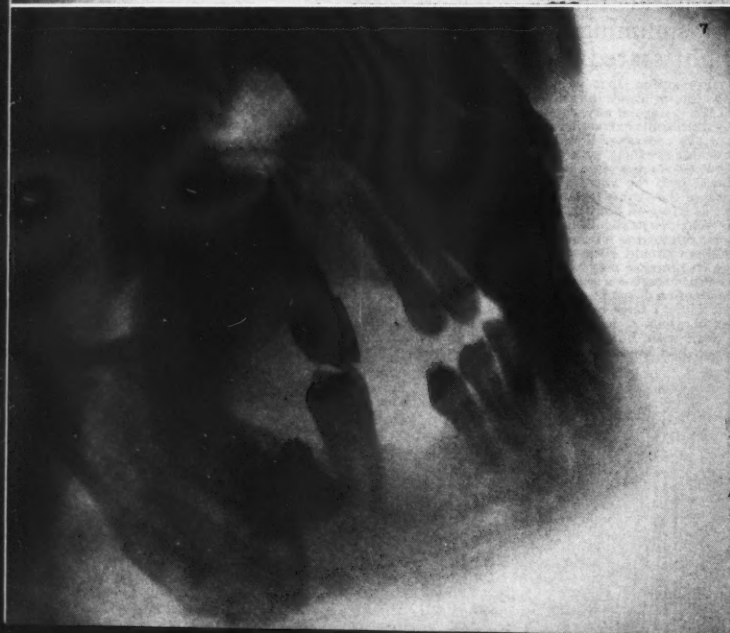
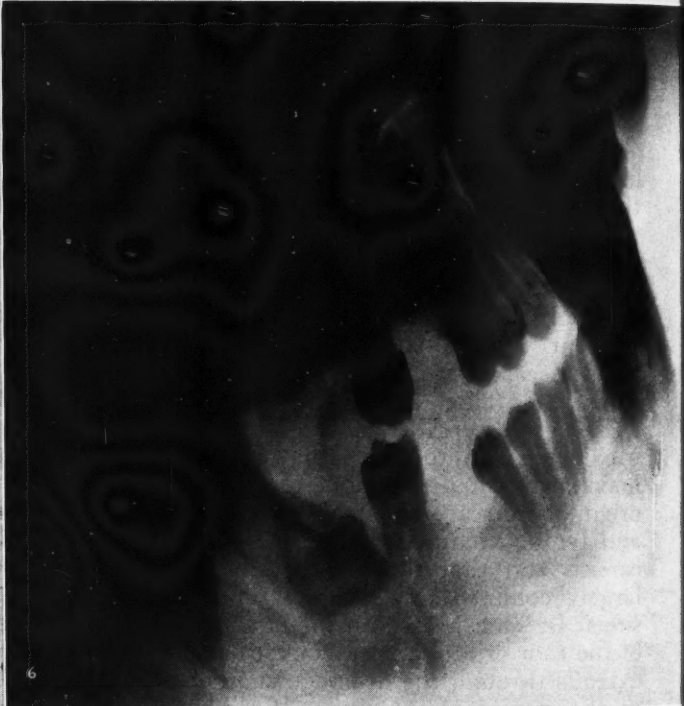
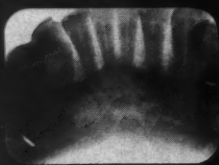
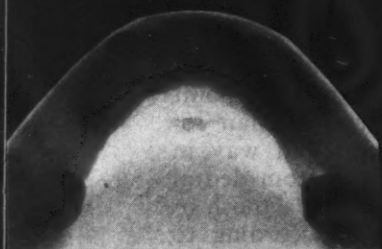
(2) What steps, if any, should be taken in the event of an opening of the antral cavity during the extraction of a tooth, as shown by discharge of blood from the nose or the passage of liquids into the nose? I suggest expectant treatment, with the avoidance of any syringing of the socket.

(3) What steps should be taken should a tooth or fragment unfortunately be displaced into the antrum? I suggest that it should be removed through an opening in the canine fossa at an early date, as infection always supervenes if it be left as a foreign body in the antrum.

(4) What steps should be taken in regard to a fragment of an upper premolar or molar retained as a result of fracture during extraction? Whatever else is done, the patient should always be informed so that in the event of any symptoms arising its presence may be known.

(5) When there is a search for infection in the upper teeth or alveoli as a cause of constitutional symptoms the condition of the antrum should also be ascertained. Thus, I have on several occasions observed patients with joint or other lesions in whom a dead infected molar tooth, perhaps with apical disease had been dealt with, but the co-existence of an antrum full of pus in close relationship to it had been unrecognized.

¹Pitts, A. T.; Hardy, E. A.; Wright, A. J.; Davis, E. D. D.; Cambrook, Draper Stones, H. H., and Mill, W. A.: Antral Infection of Dental Origin, Proc. Roy. Soc. Med. 32:1022 (June) 1939.



Sulfanilamide Treatment for Osteomyelitis: Sequestration without Exfoliation

M. HILLEL FELDMAN, D. D. S. and S. J. TUREL, M. D., New York

THE CASE REPORT to be presented here is interesting because of the absence of the "throwing off" of bone sequestrums from the diseased area, and because of the complete uneventful recovery in which neither teeth nor bone substance were lost.

Report of Case

A man, aged 32, previously in good health, presented on May 6, 1938, with marked tenderness and swelling on the chin. The inflammatory area extended below into the submental region.

History—The patient gave a history of striking his chin a violent blow when bending to pick up a tool while at work, a month prior to our

seeing him. During this period the patient had been under dental and medical care, but the dental etiology of the pain was not suggested until the swelling suddenly appeared.

Roentgenographic Examinations—Roentgenograms revealed an osteoclastic process going on far below the incisor apexes, with an erosion of the lower border of the mandible as seen in Fig. 1. An occlusal roentgenogram (Fig. 2) showed this breaking down at the lower border clearly, with a sequestrum of bone fractured off from the symphysis during the trauma a month previous to examination. Fig. 3 is another view of this condition, taken on the same date.

Treatment—Hot magnesium sulphate compresses were applied on the swelling for four days, when an incision was made under the chin to establish drainage. On May 23, the patient was hospitalized. The temperature had become elevated to a 102.5° F. by mouth. Prontylin (p-Aminophenyl-sulfanamide) in 7½ grain tablet doses by mouth was prescribed every three hours for the first three days, making a total of 50 grains taken per day. This was then cut down to 35 grains a day for three days; then 25 grains daily for seven days, and then discontinued. Within one week, the patient was discharged from the hospital for office attention over the next two months.

Course—Several roentgenograms are shown here which indicate a breaking down and then a "building-up" without any exfoliation. Figs. 6 and 8 show a complete regeneration. The patient had an uncomplicated convalescence without any loss of bone substance. The date of discharge from treatment was September 10, 1938.

Comments

1. Sulfanilamide, introduced by Domagk in 1935, was originally used as a specific chemotherapeutic agent in combating hemolytic streptococcal infections with striking results. Since that time the drug has been used with almost equal effect in colon bacillus infections of the genitourinary tract, gonorrhea, meningococcus meningitis, undulant fever, pneumonia, chancroid and lymph-granuloma inguinale. Many encouraging reports are noted also in Ludwig's angina and miscellaneous types of cellulitis.

2. Great care should be taken in the administration of this drug, because of individual idiosyncrasies with the production of toxic symptoms, the most common being anorexia, lassitude, nausea, vomiting, dizziness, acidosis, skin rashes, secondary fever, and anemia. Cyanosis is almost always present when the drug is given in large doses. These symptoms disappear when treatment is discontinued.

3. Treatment should be carried out under the supervision of a physician who must be constantly alert to the possible occurrence of rare but serious complications, such as agranulocytosis and acute hemolytic anemia. Blood counts and urinalyses are therefore taken frequently, as well as estimations of the concentrations of the drug in the blood, which should vary from 6 to 10 mg. per hundred cubic centimeters of blood.

4. No satisfactory explanation has yet been given for the mechanism of the effect of the drug. It may be given orally or parenterally, preferably orally.

730 Fifth Avenue.
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Fig. 1—Roentgenogram taken May 16, 1938, showing breaking down of cancellous bone near lower border of jaw. Eroded outline in region of symphysis is also seen.

Fig. 2—Occlusal roentgenogram taken May 16, showing osteomyelitis with particle of dislodged bone in region of symphysis. Teeth are not involved.

Fig. 3—Second occlusal roentgenogram of same area also taken on May 16.

Fig. 4—Lateral jaw roentgenogram (June 2), showing progressive destruction. At no time did the osteomyelitis involve the teeth.

Fig. 5—Roentgenogram taken June 9, indicating sequestrums at lower border of jaw separating from the body of the mandible.

Fig. 6—Roentgenogram taken July 2 shows almost complete obliteration anteriorly of lower border of mandible.

Fig. 7—Roentgenogram taken September 10 shows amazing filling in of bone to reestablish original density and contour of mandible.

Fig. 8—Roentgenogram taken on October 17, 1938, shows virtually complete calcification of area of sequestration without loss of original contour.



"Oh, Mother's been having a dreadful time with her plates! They don't fit."

"I know; I had the same trouble till I went to Doctor Jones. You just take her to see him; he'll fix her up."

Conversation like this is heard somewhere every day. It makes some reputations and breaks others. For denture patients (unlike surgical ones) do not get over their troubles and forget them quickly, but live with them and talk about them until they are finally cared for by operators having greater skill or better methods.

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NOTES ON THE

Cuff

Catnaps for Dentists . . .

For a long time I have been hoping to find some scientific confirmation for my theory about catnaps for dentists. I believe that if all of us could bog down once in a while during the day to take the load off our feet, relax our muscles, give the viscera a chance to readjust themselves, we would be easier folks to get along with and more efficient dentists. I have finally found such a confirmation in the address by August Krogh, delivered before the Institute of Medicine of Chicago last May. Doctor Krogh describes the effect of posture on the circulation. From a series of experiments he concludes that man was never intended for the erect position over a long period of time; that if he

stands erect long enough the ability of the intestines to absorb food is definitely decreased, whereas the pulse rate is increased. Standing erect for a long time, then, causes a decrease in the intestinal blood supply and the heart must work harder.

My grandmother lived to be a ripe 91 and as far back as I can remember, she dozed in her chair after her noon-day meal. A daughter of hers has practiced the same catnapping for 83 years. Babies, cats, and dogs have the same facility for quick relaxation and nap-taking. With them, their instincts are probably in the forefront of their living which makes them do the right thing first. If dentists can't stretch out somewhere at noon, they can save the circulatory mechanism somewhat by using an operating stool during their working hours.

Some day I would like to lead a national crusade against business-luncheon dates where men get together and fill their stomachs with heavy food and then engage in so-called conferences on weighty matters. Far better if these fellows could meet under Plato's porticoes and



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stretch out on benches under colonnades; or, in these days of brick and steel, look for a place under the trees. Probably one thing wrong with American business is that so much of it is conducted around the groaning board where little but intestinal stasis is the outcome. There is no harm in entertaining discussion during a meal, preferably with a bottle of wine. Such gastronomic stimulation is physiologically good. But to pound the table to gain a pinhead point and rant about tariffs and "that man in Washington" and war scares and declining profits—these things raise the blood pressure, disturb the digestive processes, and in general spoil the way of living.

Neurotics . . .

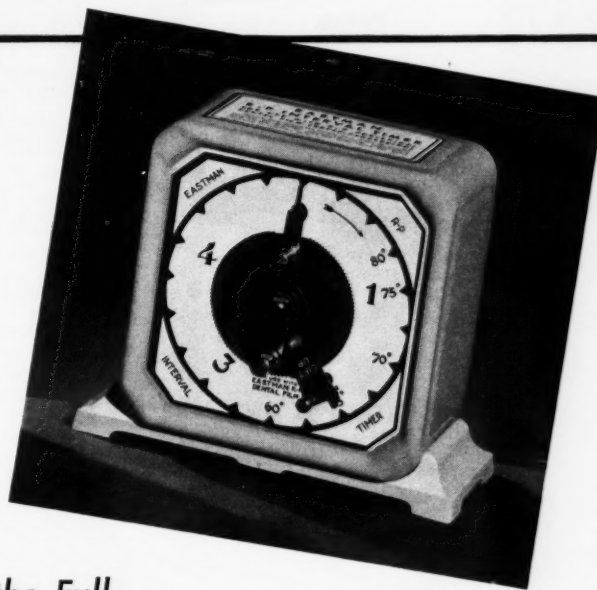
When dentures do not fit, when patients complain of idiopathic pulpitis, when patients describe intracetable pains of indefinite origin, it is easy enough to dismiss the difficulty with the opprobrious description of the patient as a "neurotic." I was interested to see in a medical publication that physicians are chided who call a patient a "neurotic," because it expresses the physician's own defense reaction, his own inadequacy. The same is true of us dentists. If we don't know why a denture hurts or fails to function; why a tooth aches, or what causes these obscure facial pains—the only answer is that our understanding is circumscribed; that our knowledge is limited—not that the patient is hypochondriacal. To shift the blame on the plangent patient with the label "neurotic" is not the solution to our inadequacies.

Radio Oracles . . .

In the Milwaukee Auditorium is an anonymous painting of The Flagellants showing a group of people torturing themselves to expiate their offenses. This apparently is a medieval scene but the practice is still extant—the radio has revived it. The radio beckons people to a self-anointed oracle to have their problems of marriage, health, and occupation solved. It is difficult to see how a person can expose his personal distresses to a listening world, and it is even more difficult to figure out how any man can set himself up as the confidant of and adviser to a world of perplexed and troubled people. When we think of the ancient Greeks visiting the Oracle at Delphi to learn the outcome

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MUCH valuable time is saved in every x-ray examination . . . processing is simpler . . . when you use *Eastman R-P Periapical Dental Film (Rapid-Processing)*. Solutions need no longer be adjusted to 65° F. . . Radiographs of the highest quality are obtained at any temperature from 60° to 80° F. But the development should be *accurately* timed.

The new *Eastman R-P Interval Timer* is designed especially for this purpose. It is virtually a time-temperature chart in itself . . . solution temperatures from 60° to 80° F., in 5° intervals, are printed on the dial, in blue, opposite the correct development times, in black. Merely turning a hand on the face sets the Timer at the proper interval—from a fraction of a minute to 5 minutes—and also winds the mechanism.

Guesswork is entirely eliminated with this precise instrument. Simply check the solution temperature with an accurate thermometer . . . get the correct timing from the Timer dial . . . turn the setting hand to the proper point . . . remove the films when the alarm bell rings, and they will be perfectly developed.

The new *Eastman R-P Interval Timer* is attractively finished in steel-gray enamel. It is priced at \$5, at your regular dental dealer's.

TIME-SAVING PRODUCTS FOR ROUTINE RADIOLOGICS

Eastman R-P Periapical Dental Film (Rapid-Processing) may be developed with the highest quality results with solutions at any temperature from 60° to 80° F.—only 2½ min. at 60°, 2 min. at 65°, ¾ min. at 80°. No time is wasted cooling or warming solutions—in addition, from 2 to 4 minutes are saved in actual development time.

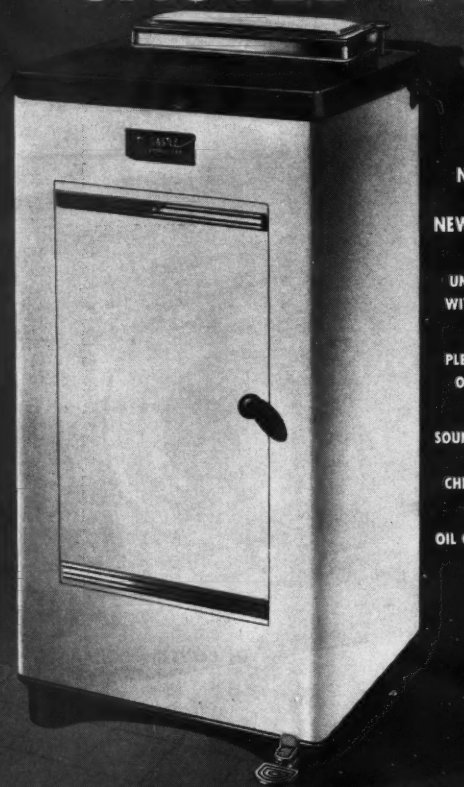
Eastman Concentrated X-ray Processing Solutions are ready for use by merely diluting the liquids with water. Long life and stable, dependable chemical action distinguish them.

These Eastman products, designed especially for dental radiography, save time—and their quality makes them the most economical to use. . . . Eastman Kodak Company, Medical Division, Rochester, N. Y.

Be sure to visit the Kodak Building at the New York World's Fair

Only Eastman Makes a Complete Line of Quality X-ray Materials

THE NEW CASTLE "90"



NEW STYLE
NEW LOW PRICE
UNDERCUT BASE
WITH TOE RECESS
PLENTY OF SPACE
ON TABLE-TOP
SOUND-PROOF DOOR
WITH
CHROME FITTINGS
OIL CHECK FOOT-LIFT

● Entirely NEW in Style...in Beauty...in Design...in Price, this Castle "90" brings your office "Single Standard" hospital technique. Easy hand filling gives Bacteriological Safety. Foot-lift prevents "hand contamination". Cast Bronze Boiler for lifetime leak-proof service and, of course, there's the Double Full Automatic Control.

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RELIEF AFTER EXTRACTION

Mu-col

is given by MU-COL solution because of its cooling, soothing quality. It aids normal granulation and reduces the risk of infection. For over 20 years dentists have recommended MU-COL because of its superiority to ordinary saline solutions. Use it regularly at the chair. Valuable as a mouth wash and cleanser for dentures. In powder form, MU-COL does not deteriorate and is quickly soluble.

PLEASE SEND SAMPLE OF MU-COL

THE MU-COL CO. Name D.D.S.
Dept. DD-89
Buffalo, N. Y. Address

(Or please use coupon on page 326)

of this or that, it seems far away—something primitive, pagan, superstitious, entirely out of harmony with modern civilization. But the Greeks had more justification. They at least believed that their oracles were endowed with divine power to forecast, to admonish, to solve. It is a pretty safe bet that no man ever lived who could cut to the heart of all these harrowing, personal problems and solve them in a seance over the air, lasting a couple of minutes. A few bare facts exhibited by an harassed and helpless and usually ignorant person is all the radio oracle needs for his commercialized solutions to human trials.

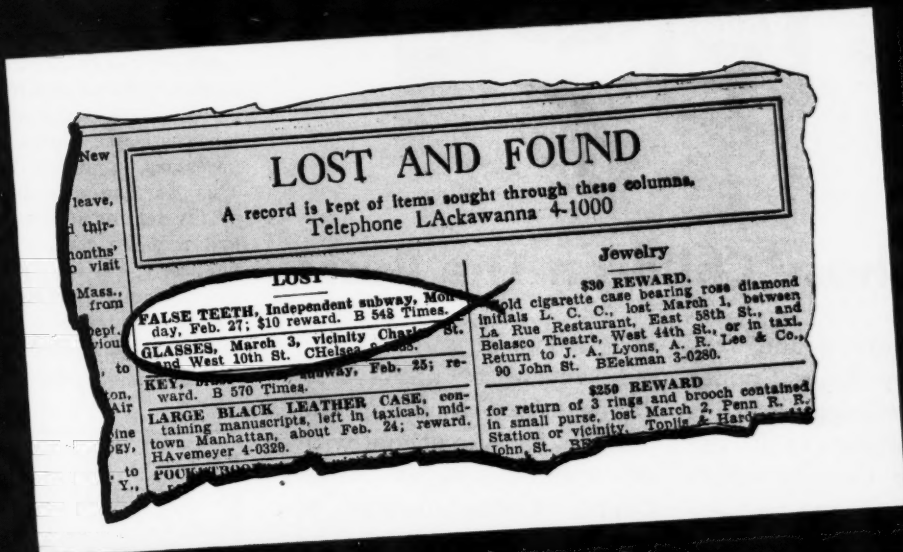
So far no enterprising sponsor has conceived of a dental-experience-of-the-air program where all the patients who have dental ills could come and weep before the microphone. If such an exploiting sponsor should raise his head, I know of any number of dentists who believe that they are sufficiently oracular to answer all the problems. They can be found at almost any clinic, at almost any dental society meeting, and anywhere in the literature.

An Anonymous Nobleman . . .

There is a dentist in the United States who is not married. This is not news. There is a dentist in the United States who adopted a baby. This is not news. But when the unmarried dentist is the one who adopted a baby, that approaches the periphery of news. When the baby adopted is not a relative, not the child of a friend, not a pretty baby, the news angle begins to emerge. When the baby adopted by the unmarried dentist is one that is hopelessly burned and scarred, that is on the threshold of a human interest story of the first rank.

At the Milwaukee meeting of the American Dental Association I heard this human interest story told by the man who is this kind of nobleman. When he says he doesn't want his name mentioned, he means just that. This is the story:

A war veteran, the father of nine children died. Two months later a baby girl in this family was accidentally burned by a little brother. For months the child lay in the hospital waiting for death to come. Necrosis developed; horrible disfiguring scars were formed. The head



SO, IT'S FUNNY, IS IT?

WE, as dental patients, don't think so. And the chances are your patients don't want to play the role of "the edentulous patient looking for his denture" any more than we would. If it's possible to avoid dentures, they want to—and they look to you and your skill to protect them against the loss of their teeth.

Routine radiographic examination is recognized as the most important step in modern preventive dentistry. With your own CDX in your office you will be equipped to make excellent radiographs, easily and quickly. And they'll help you find those conditions that might be overlooked with mirror and probe: Hidden decay, especially where teeth are in contact, around and under fillings, beneath caps and in the central portion of a crown. Many teeth which look normal on visual inspection are revealed as mere shells when subjected to the scrutiny of a CDX.

You, as a progressive modern dentist, realize

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the value of x-ray examination for every patient. As a value-wise business man you will protect your x-ray investment by getting full facts about the easy-to-own practice-building CDX Dental X-Ray Unit before you spend one cent on any x-ray unit. These facts are yours for the asking. To get them will cost you nothing, and incur you no obligation; just sign and mail the handy coupon, today. It's the first step toward making a sound, economical, dividend-paying investment in yourself and your practice.

WITHOUT OBLIGATION

Please send me full facts and figures about the G-E CDX Dental X-Ray Unit and your convenient purchase plan.

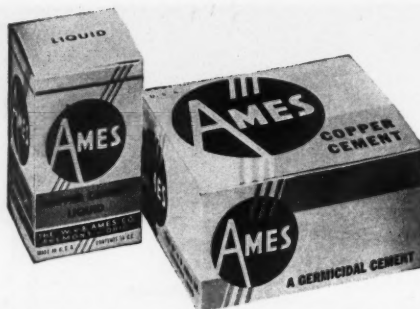
Name

Address

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H 48

● Liquid in bottle equipped with dropper assembly keeps better, easier to use. Large economy package—liquid and 1 ounce powder—\$3.00.

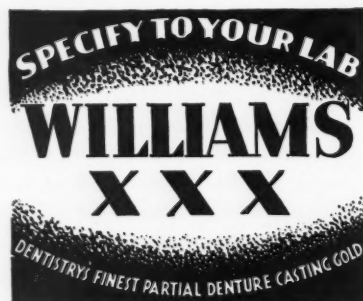


Give Those Children The Best!

THERE are sound reasons why Ames Copper Cement is selling in ever-increasing volume. It is the only Copper Cement which absolutely prevents and arrests decay. It sets rapidly after insertion. It is tough

and strong. It is the preferred cement for filling children's teeth. Send those child patients back to school with all the advantages Ames Copper Cement brings to dentistry for children. The W. V-B. Ames Company, Fremont, Ohio.

AMES DENTAL CEMENTS



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A cleansing, stimulating mouth-wash that promotes healing.
Patients gladly use it.

Inflamed gums — Plate irritation

and the structures of the face were bound taut by bands of scars to this child's chest wall. Then, through the offices of the American Legion, the unmarried dentist came into the picture. He legally adopted the injured child. He has enlisted the support of plastic surgeons and hospitals and is carrying this youngster through the long series of operations that are necessary to restore her to society. This is a man, a credit to the dental profession and to the world. It is too bad that we cannot give his name publicly, but if any readers would like his name and address, we will be glad to send it. Such a man should be told by all of us that we are glad he was born.—E. J. R.

DENTAL MEETING

Dates

Fall Clinic of Montreal Dental Club, fifteenth annual meeting, Mount Royal Hotel, Montreal, Canada, September 27-29.

University of Buffalo, School of Dentistry Alumni Association, thirty-ninth annual meeting, Hotel Statler, Buffalo, New York, October 11-13.

American Society for the Advancement of General Anesthesia in Dentistry, New York City, fourth Monday in March and October.

District of Columbia Dental Society, second and fourth Tuesdays in each month from October to June, United States Public Health Auditorium.